

## Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing of Claims:

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- 1 1. (Presently Amended) A method for constructing a wired-AND bus system,  
2 comprising:  
3 (a) constructing a plurality of wired-AND bus segments, ~~each bus segment~~  
4 ~~having being small enough to avoid rise time problems;~~  
5 (b) connecting pairs of bus segments together with bus bridges wherein each  
6 bus bridge selectively forwards transactions and commands from one bus  
7 segment to another; and  
8 (c) connecting master devices and slave devices to the bus segments,  
9 wherein a slave device on a first bus segment has the same address as  
10 another slave device on a second bus segment different from the first bus  
11 segment; and  
12 (d) sending a tunnel command from a bus master on the first bus segment,  
13 the tunnel command containing data and a device address of the other  
14 slave device as data, to a bus bridge connecting the first and second bus  
15 segments whereupon the bridge extracts the slave device address and  
16 forwards the data to the extracted slave device address on the second bus  
17 segment.
- 1 2. (Original) The method of claim 1 wherein each bridge comprises an address  
2 bitmap and wherein the bridge selectively forwards transactions based on  
3 information in the address bitmap.

1 3. (Original) The method of claim 1 wherein each bridge comprises a pair of range  
2 registers wherein values in the range registers determine which commands will  
3 be forwarded by the bridge.

1 4. (Original) The method of claim 1 wherein step (b) comprises connecting the bus  
2 segments into a tree hierarchy.

1 5. (Presently Amended) The method of claim 1 further comprising:  
2 (de) programming one bus master to enter information into the address  
3 bitmaps and range registers of each bridge.

1 6. (Presently Amended) The method of claim 5 wherein the bus segments are  
2 connected into a tree hierarchy having a root level and the method comprises:  
3 (ef) locating the one bus master at the root level.

1 7. (Original) The method of claim 1 wherein at least some of the bridges are bi-  
2 directional bridges.

1 8. (Original) The method of claim 7 wherein each bi-directional bridge is comprised  
2 of two unidirectional bridges, each having a bridge ID.

1 9. (Original) The method of claim 8 wherein each unidirectional bridge has a  
2 different bridge ID.

10. (Canceled)

1 11. (Presently Amended) Apparatus for constructing a wired-AND bus system,  
2 comprising:  
3 a plurality of wired-AND bus segments, ~~each bus segment having being~~  
4 ~~small enough to avoid rise time problems;~~

5 bus bridges connecting pairs of bus segments together wherein each bus  
6 bridge selectively forwards transactions and commands from one bus segment to  
7 another; and

8 at least one master device and at least one slave device connected to the  
9 bus segments, wherein a slave device on a first bus segment has the same  
10 address as another slave device on a second bus segment different from the first  
11 bus segment; and

12 means in a bus master on the first bus segment for sending a tunnel  
13 command, the tunnel command containing data and a device address of the  
14 other slave device as data, to a bus bridge connecting the first and second bus  
15 segments whereupon the bridge extracts the slave device address and forwards  
16 the data to the extracted slave device address on the second bus segment.

1 12. (Original) The apparatus of claim 11 wherein each bridge comprises an address  
2 bitmap and wherein the bridge selectively forwards transactions based on  
3 information in the address bitmap.

1 13. (Original) The apparatus of claim 11 wherein each bridge comprises a pair of  
2 range registers wherein values in the range registers determine which  
3 commands will be forwarded by the bridge.

1 14. (Original) The apparatus of claim 11 wherein the bus bridges connect the bus  
2 segments into a tree hierarchy.

1 15. (Original) The apparatus of claim 11 further comprising a configuration host that  
2 enters information into the address bitmaps and range registers of each bridge.

1 16. (Original) The apparatus of claim 15 wherein the bus segments are connected  
2 into a tree hierarchy having a root level and the configuration host is located at  
3 the root level.

1 17. (Original) The apparatus of claim 11 wherein at least some of the bridges are bi-  
2 directional bridges.

1 18. (Original) The apparatus of claim 17 wherein each bi-directional bridge is  
2 comprised of two unidirectional bridges, each having a bridge ID.

1 19. (Original) The apparatus of claim 18 wherein each unidirectional bridge has a  
2 different bridge ID.

1 20. (Canceled).

1 21. (New) A method of constructing a multi-segment wired-AND bus system wherein  
2 a first bus segment is connected to a second bus segment with a bus bridge in  
3 order to isolate faults, the method comprising:

4 (a) when the bus bridge is attempting to acquire the second bus segment and  
5 the second bus segment is busy for a predetermined period of time;  
6 attempting to cause any device connected to the second bus segment to  
7 respond;

8 (b) if a device connected to the second bus segment responds within a  
9 second predetermined time, resetting the second bus segment.

1 22. (New) The method of claim 21 further comprising:

2 (c) if no device connected to the second bus segment responds with the  
3 second predetermined time, informing a bus master on the first bus  
4 segment.

1 23. (New) The method of claim 22 wherein step (c) comprises issuing a negative  
2 acknowledgement to the bus master.

- 1 24. (New) The method of claim 21 wherein the second bus segment comprises a  
2 clock line and a data line and step (a) comprises toggling the clock line.
- 1 25. (New) The method of claim 24 wherein step (b) comprises issuing a  
2 START/STOP command sequence.
- 1 26. (New) Apparatus for constructing a multi-segment wired-AND bus system  
2 wherein a first bus segment is connected to a second bus segment with a bus  
3 bridge in order to isolate faults, the apparatus comprising:  
4 means operable when the bus bridge is attempting to acquire the second  
5 bus segment and the second bus segment is busy for a predetermined period of  
6 time; for attempting to cause any device connected to the second bus segment to  
7 respond;  
8 means operable if a device connected to the second bus segment  
9 responds within a second predetermined time, for resetting the second bus  
10 segment.
- 1 27. (New) The apparatus of claim 26 further comprising means operable if no device  
2 connected to the second bus segment responds with the second predetermined  
3 time, for informing a bus master on the first bus segment.
- 1 28. (New) The apparatus of claim 27 wherein the means for informing a bus master  
2 comprises means for issuing a negative acknowledgement to the bus master.
- 1 29. (New) The apparatus of claim 26 wherein the second bus segment comprises a  
2 clock line and a data line and the means for attempting to cause any device  
3 connected to the second bus segment to respond comprises means for toggling  
4 the clock line.
30. (New) The apparatus of claim 29 wherein the means for resetting the second bus  
segment comprises means for issuing a START/STOP command sequence.